

What is claimed is:

1. A method for assisting the laser drilling of a hole in a part, comprising the steps of:
providing a camera;
providing a target hole at a first position;
capturing a first image of said target hole at said first position with said camera;
moving said target hole to a second position and capturing a second image of said target hole; and
computing a drilling location of said target hole from said first image and said second image, said computed drilling location used to laser drill said target hole.
2. The method of claim 1 comprising the additional step of calibrating said laser.
3. The method of claim 2 wherein calibrating said laser comprises the steps of:
providing a calibration block having a pinhole;
aligning a laser beam with said pinhole; and
setting a home position of said laser.
4. The method of claim 2 comprising the additional step of calibrating said camera.
5. The method of claim 4 wherein calibrating said camera comprising the steps of:
providing a calibration block;
mounting a calibration target on said calibration block;
imaging said calibration target at a plurality of positions along a z-axis with said camera from said first position and said second position;
computing a 3D-to-2D mapping from said imaged calibration target; and
storing said 3D-to-2D mapping on a storage medium.
6. The method of claim 1 wherein providing said target hole comprises providing a part having at least one said target hole.
7. The method of claim 6 wherein providing said target hole comprises providing a turbine blade having at least one said target hole.

8. The method of claim 1 comprising the additional step of retrieving a nominal position of said target hole from said storage medium; and
moving said target hole to said nominal position.
9. The method of claim 1 wherein computing said drilling location of said target hole comprises using image processing software to locate an actual target hole location, and computing an offset between said actual target hole location and said nominal position.
10. A apparatus for laser drilling a hole in a part, comprising:
a laser;
a camera mounted to said laser for capturing a first image of a target hole on a part at a first position and a second image of said target hole at a second position; and
means for computing a drilling location of said target hole from said first image and said second image.
11. The apparatus of claim 10 additionally comprising a calibration block having a pinhole for determining a home position of said laser.
12. The apparatus of claim 10 wherein said target hole is located in a turbine blade.
13. The apparatus of claim 10 additionally comprising a means for identifying extracting a nominal position of said target hole.
14. A vision system, comprising:
a single camera to image a part;
a fixture for said part, said fixture movable between a first position where said camera can capture a first image of said part and a second position where said camera can capture a second image of said part; and
means for computing a location of a target on said part from said first image and said second image.
15. The vision system of claim 14, in combination with a laser drilling apparatus.

16. The vision system of claim 15, wherein said target is a location of hole.
17. The vision system of claim 16, wherein said hole is a cooling hole.